

INNOVATION IN ULTRASONIC RESPIRATORY DIAGNOSTICS

THOR PRODUCT LISTING

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1. DEVICES

1.1 SpiroTube Primary Edition



SpiroTube is an industry standard ultrasonic spirometer (respiratory function diagnostic and monitoring system) with an easily and quickly disinfectable sensor, built-in automatic calibration and no moving parts. This product also provides an ultimate solution for infection control in respiratory labs.

SpiroTube can be used for the diagnosis and screening of **COPD** (Chronic Obstructive Pulmonary Diseases) and **asthma**.

To learn more about spirometry and respiratory diagnostics please visit this web site:

<http://thorlabor.com/en/services/support#bottom> or simply visit: <http://thorlabor.com>

The SpiroTube device is PC based, that is, it can be used with a computer with a plug-and-play USB computer connection and with a PC software called ThorSoft. There is no need for external daily calibration since when it is connected to a PC it automatically calibrates before every measurement.

Precision:	3%
Resolution:	6 mL/sec
Flow range:	+/- 18 L/sec
Digital sampling rate:	80 MHz
Flow dimensions:	30 mm (OD) x 150 mm
Device dimensions:	27 x 60 x 150 mm
Communication:	USB or serial

Highly cost efficient design, robust and durable.

Easy to use Thorsoft Primary Edition software displays FVC, FEV1, FEV1/FVC, PEF, FEF25-75% parameters.

Contents: ThorSoft Primary Edition Software CD, USB cable, user manual, stoppers for disinfection, carrying case, 1 bacterial filter and 1 plastic disinfectable mouthpiece.

We provide 1year complete replacement factory warranty for all our products.

1.2 SpiroTube Professional Edition



SpiroTube is also known on various markets as: *UltraSpiro*, *PRO SPIRO*, *Pneumospc*, *PulmoTube*, *SpiroSonics Blast* and *ksp-1000 PC – Spiro*.

SpiroTube is a lightweight, compact and easy to use PC based ultrasonic spirometer.

Ultrasonic based spirometry is the leading technology used in the assessment of COPD and asthma.

Ultrasonic based spirometers have the advantage of no moving parts, hence making them reliable over the entire life of the spirometer.

It is highly accurate and since it encases a continuous plastic tube, it is easily disinfected using any cleaning solution. We recommend the use of the Instrumed disinfecting agent as the optimal cleaning solution for respiratory devices.

The SpiroTube simply connects via a USB cable to any PC computer or laptop.

The included software creates a very simple and intuitive interface on the connected computer.

The device will auto-calibrate before every measurement hence negating the need for daily calibration with a pump syringe.

Additional features include:

- automated assistance in the interpretation of the recorded spirometry graph (decision support system)
- child incentive animations,
- pharmaceutical testing subsystem
- long term trend analysis from stored patient data
- Integrates to “Best Practice” Software (a leading GP software in Australia)

Precision:	3%
Resolution:	8mL/sec
Flow range:	+/- 18 L/sec
Digital sampling rate:	100 MHz
Flow dimensions:	30 mm (OD) x 150 mm
Device dimensions:	27 x 60 x 150 mm
Communication:	USB or serial

Standard pulmonary function parameters : FVC, FEV1, FEV0.5, FEV3, FEV1/FVC, FEV1/FIVC, FEV3/FVC, FEV1/FEV6, FIV1/FIVC, PEF, FET, ELA , MME2575, FEF25, FEF50, FEF75, MMEF2550, FEV6, FIVC, FIV1, PIF, FIF25, FIF25, FIF75, EV, Zero Time, EOTV05, EOTV1, PET. , POST and PRE tests

Also integrates with our ThorIax ECG system.

Contents: ThorSoft Professional Edition Software CD, USB cable, user manual, stoppers for disinfection, carrying case, 1 sample bacterial filter and 1 disinfectable plastic mouthpiece.

We provide 1 year full replacement warranty for all our products.

1.3 SpiroTube B Edition



The **SpiroTube B Edition** simply connects via a USB cable to any PC computer or laptop. It is suitable **for harsh conditions**, under heavy use in hospitals as well as occupational safety diagnostic and monitoring sites. Robust design, hardened plastic and silicon covers are applied for rough environments.

Additional features include:

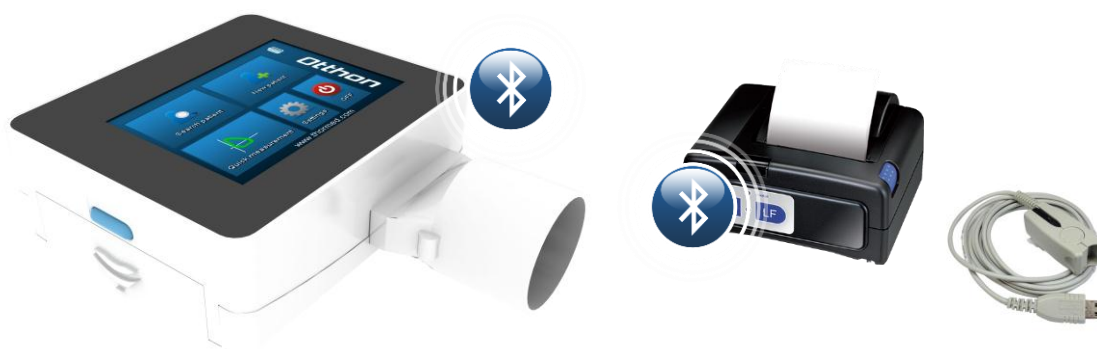
- Built-in automatic internal calibration
- Diagnostic decision support system
- Innovative diagnostic visualization
- Zero cross-contamination (easy to disinfect)

Precision:	3%
Resolution:	8mL/sec
Flow range:	+/- 18 L/sec
Digital sampling rate:	100 MHz
Flow dimensions:	30 mm (OD) x 150 mm
Device dimensions:	27 x 60 x 150 mm
Communication:	USB or serial

Standard pulmonary function parameters : FVC, FEV1, FEV0.5, FEV3, FEV1/FVC, FEV1/FIVC, FEV3/FVC, FEV1/FEV6, FIV1/FIVC, PEF, FET, ELA , MME2575, FEF25, FEF50, FEF75, MMEF2550, FEV6, FIVC, FIV1, PIF, FIF25, FIF25, FIF75, EV, Zero Time, EOTV05, EOTV1, PET. , POST and PRE tests

Contents: ThorSoft Professional Edition Software CD, USB cable, user manual, stoppers for disinfection, carrying case, 1 sample bacterial filter and 1 disinfectable plastic mouthpiece.

1.4 OTTHON Spirometer



The Otthon ultrasonic spirometer is an ultimate solution for mass screening COPD and asthma. One of our customers, a major pharmaceutical firm, performed 430 diagnostic tests in a single day, with one single Otthon device in a mass screening project.

Otthon features a very compact, robust design, optimized for usability and efficiency.

The device is fully disinfectable, it features a built-in rechargeable battery, a colourful display with touchscreen operation and human voice interpretation. Upon switching on the device, it plays a video tutorial on how to use the device. The device is suitable to be used by General Practitioners, Respiratory Physicians, and even by the patients themselves. (hence the name “Otthon” which means “Home” in an exotic European language.)

The device features a “quick measurement” function. There is no need to enter any patient data. The diagnosis will not be saved in its memory, the “quick measurement” can be started with just pressing a button and you are ready to go!

The device can also perform professional diagnostics by entering the patient data. Once this is done, the predicted values are generated and the diagnostic report is created.

The device features a direct printer output via standard USB printer port, to a wide number of HP and other printers. The diagnostic results can be printed out in a predefined format.

Precision:	3 %.
Resolution:	3 mL/sec.
Flow range :	+ - 18 L/Sec.
Digital sampling rate:	80 Hz.
Device dimensions:	35 X 120 X 85 mm.
Communication:	USB , optional Bluetooth
Power supply:	USB 5 V or 2 x AAA battery

Standard pulmonary function parameters: FVC, PEF, FEV1, FEV1/FVC, FEF25-75, FEF25-50, FEF50-75, FEF25, FEF50, FEF75, FEV6, FET, FIVC, PIF, FIV1, FIV1/FIVC, FIT, ELA

Additional options:

- ThorSoft software for PC connection (synchronize patient database and diagnostic measurements),
- SP02 sensor
- Bluetooth module for telemedical communication and also for wireless printing

Contents: charger, USB cable, user manual, plug for disinfection, carrying case, a sample single-use bacterial filter and a sample reusable plastic mouthpiece.

1.5 OTTHON ILMATAR Edition optimized for children (UNDER DEVELOPMENT)



The Otthon ultrasonic spirometer is an ultimate solution for mass screening COPD and asthma especially developed for children with lung trainer and respiratory game applications.

Otthon features a very compact, robust design, optimized for usability and efficiency.

The device is fully disinfectable, it features a built-in rechargeable battery, a colourful display with touchscreen operation and human voice interpretation. Upon switching on the device, it plays a video tutorial on how to use the device. The device is suitable to be used by General Practitioners, Respiratory Physicians, and even by the patients themselves. (hence the name "Otthon" which means "Home" in an exotic European language.)

The device features a "quick measurement" function. There is no need to enter any patient data. The diagnosis will not be saved in its memory, the "quick measurement" can be started with just pressing a button and you are ready to go!

The device can also perform professional diagnostics by entering the patient data. Once this is done, the predicted values are generated and the diagnostic report is created.

The lung trainer module features respiratory games for children. One example is a special version of "Angry Birds" where the predicted parameters are to be hit by the graphical representation of a real-time FVC curve.

At this time the product is not yet available in Europe, Australia-Pacific and the USA, certifications are under way.

1.6 SpiroThor



SpiroThor is a professional respiratory lab that fits in your pocket.

SpiroThor features a built-in automatic calibration, the device has no moving parts. SpiroThor can be used for the diagnosis and screening of COPD and asthma, furthermore for testing treatment efficiency and to set correct respiratory drug administration. The device sensor is fully disinfectable since the inner surface of the flow sensor is continuous.

SpiroThor features human voice communication with the practicing nurse/doctor/patient.

The device works stand-alone, it features a long-life rechargeable battery.

The device memory can store up to 5000 patients and more than 10.000 measurements.

Post bronchodilator diagnostics and incentive visualisation system for children studies are also available.

The professional diagnostic ThorSoft software can be used to synchronize the data from the device to a computer database. ThorSoft can also provide Bronchial Challenge tests, long term monitoring visualization and analysis and many more.

Precision :	2%
Resolution:	8mL/sec
Flow range:	+/- 18 L/sec
Digital sampling rate:	100 MHz
Flow dimensions:	30 mm (OD) x 150 mm
Device dimensions:	85 x 120 x 35 mm
Communication:	USB, Bluetooth serial

Standard pulmonary function parameters: FVC, PEF, FEV1, FEV1/FVC, FEF25-75, FEF25-50, FEF50-75, FEF25, FEF50, FEF75, FEV6, FET, FIVC, PIF, FIV1, FIV1/FIVC, FIT and more.

Contents: SpiroThor device, charger, USB cable, user manual, stoppers for disinfection, carrying case, 1 sample bacterial filter and 1 disinfectable plastic mouthpiece.

The following options are also available for SpiroThor :



The THOR CITIZEN is a small, handheld thermoprinter that can be connected to SpiroThor via cable or via Bluetooth. SpiroThor with the THOR CITIZEN thermoprinter is a complete pulmonary laboratory on the go.



OxiThor is a pulse oximeter extension to SpiroThor and it can be ordered in the same package as an extra option.

The Bluetooth communication module is also an additional option, with a wireless extension the SpiroThor device can be used in telemedical systems, it can send data to mobile phones, PDAs and other smart devices as well.

1.7 SpiroThor with Oximeter



OxiThor is a non-invasive human haemoglobin saturation measurement device with fingerclip. OxiThor is sold mainly as an extension to SpiroThor. The device can be ordered in a fully integrated form with SpiroThor, which can measure pulse and SpO₂.

The display of the measurement is real-time, however, the data is also stored in the memory of the device for post-processing.

OxiThor features human voice communication with practicing nurses, doctors and patients. OxiThor has a built-in rechargeable battery, which can be recharged from mains or from a PC computer via a mini USB cable.

1.8 THOR CITIZEN Thermoprinter



Type: CITIZEN THOR PRINTER CAB / BT

The THOR small, handheld thermoprinter does not require printer toner or ink, only thermo paper. It is a highly cost efficient, very compact solution to archive your data and to provide diagnostic report to your patients for reimbursement.

The THOR Citizen printer is available in both wired and wireless (Bluetooth) version.

1.9 SpiroTube Mobile Edition



SpiroTube Mobile Edition connects to the latest mobile technologies, thus turning mobile devices into respiratory diagnostic stations.

The device features various wired and wireless communication modules, including USB, Bluetooth and WI-FI, thus it can connect to virtually any mobile device on the market, including but not limited to:

- Symbian mobile phones, e.g. Nokia, Sony Ericsson,
- Windows Mobile, Windows CE smart phones (e.g. GigaByte Communications, GSmart),
- Android Mobile, e.g. Samsung, Sony, HTC, LG
- IOS system is under development for APPLE platforms
- BLE 4.0. protocol or Bluetooth 2 protocols included.

SpiroTube Mobile Edition is also a member of our ultrasonic spirometer family with built-in automatic internal calibration, no moving parts, and it can be used for screening COPD and asthma. It can also be easily disinfected with various cleaning solutions.

SpiroTube Mobile features an easy and efficient integration to HIS (Hospital Information Systems) and pharmaceutical testing systems.

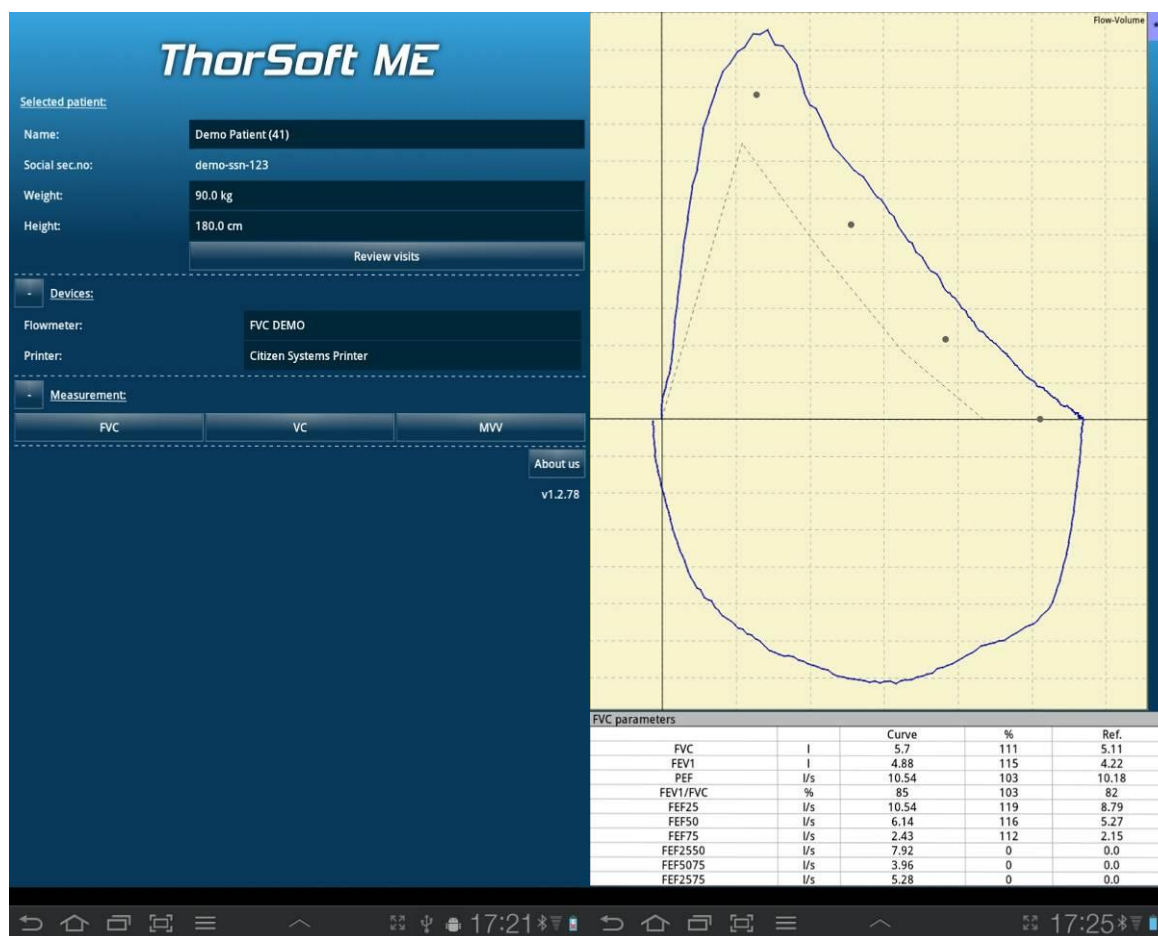
Precision:	2%
Resolution:	8mL/sec
Flow range:	+/- 18 L/sec
Digital sampling rate:	80 MHz
Flow dimensions:	30 mm (OD) x 150 mm
Device dimensions:	40 x 60 x 150 mm
Communication:	USB , Bluetooth , WiFi available as an option
Power supply:	2 x AAA battery

Contents: ThorSoft Mobile Primary Edition software for mobile phones and PDAs, charger, USB cable, user manual, plug for disinfection, carrying case, a sample single use bacterial filter and a sample reusable plastic mouthpiece

1.10 ThorSoft Mobile Edition

ThorSoft Mobile Edition is a software running on mobile devices:

- Java-enabled gadgets, such as PDAs, navigation systems, etc,
- Symbian mobile phones, e.g. Nokia, Sony Ericsson,
- Windows Mobile, Windows CE smart phones (e.g. GigaByte Communications, GSmart),
- Android Mobile, e.g. Samsung, Sony, HTC, LG



ThorSoft Mobile also features a child incentive subsystem, which can help perform measurements on younger children.

Standard pulmonary function parameters: (FVC, -FEV*0.5, FEV*0.5/IVC, FEV*0.5/FVC, FEV*1.0/IVC, FEV*1.0/FVC, PEF, FEF*25-75%, MEF*75%, MEF*50%, MEF*25%, FET, MTT, FIVC, FIV*0.5, FIV*1.0, PIF, FIF*25-75%, VC, IRV, ERV, TV, Breath rate value

ThorSoft Mobile Edition can be used with SpiroTube Mobile Edition sensor hardware and also with the professional SpiroThor diagnostic device.

ThorSoft Mobile Edition comes in a number of subversions and also in self-tailored versions:

1. **Professional Edition** - this version provides similar diagnostic features to a stand-alone spirometer, such as the OTTHON product. It displays flow-volume curves and provides all major spirometry values as well as comparison to predicted values. The software features an MMS Send function that enables the diagnosing doctor to send the diagnostic results in an MMS to another doctor for consultancy or to a server for storage.
2. **Home Care Edition for Asthma** – this version of ThorSoft Mobile is optimized for home use by patients with asthma, but they can also use a mobile phone. The software also features the GINA questions and records subjective parameters edited by the patients as well. The system can send the data via MMS to an analysing doctor or can send the information via 2 encoded SMS messages to a server.
3. **Home Care Edition for COPD** - this version of the ThorSoft Mobile Edition is optimized for home use by patients with COPD, who cannot use a mobile phone. The software is always running on a mobile phone, and the mobile phone is always on a charger and isolated from the patient but close enough for Bluetooth connectivity, e.g. in a corner of a room. The patient never needs to touch the mobile phone because the mobile phone will automatically send the data. The patient simply pushes one button on the spirometer and the device automatically connects to the ThorSoft mobile software on the phone and signals with a “beep” that the patient can perform the measurement. The patient inhales and exhales through the SpiroTube Mobile device and finishes the measurement. The software automatically detects that the measurement has ended, and it automatically sends the measured data via 2 SMS messages to a server. The SpiroTube Mobile Edition device switches itself OFF automatically after some time.
4. **Pharmaceutical Testing Edition for Pharma Companies and CROs.** - this version of the ThorSoft Mobile Edition is optimized for testing the efficiency of pharmaceuticals and it is similar to the Home Care Edition, but it is also extended with a diary and other features as requested by the CRO and as characteristics for the specific trial.

1.11 SpiroTube Mobile Android/Windows8 Edition



SpiroTube Mobile Android/Windows8 Edition connects to Android and Windows8 tablets and mobile systems, turning these devices into respiratory diagnostic stations.

The device features various wired and wireless communication modules, including USB, Bluetooth and WI-FI.

SpiroTube Mobile Android Edition is also a member of our ultrasonic spirometer family with built-in automatic internal calibration, no moving parts, and it can be used for screening COPD and asthma.

It can also be easily disinfected with various cleaning solutions.

The device communicates via human voice.

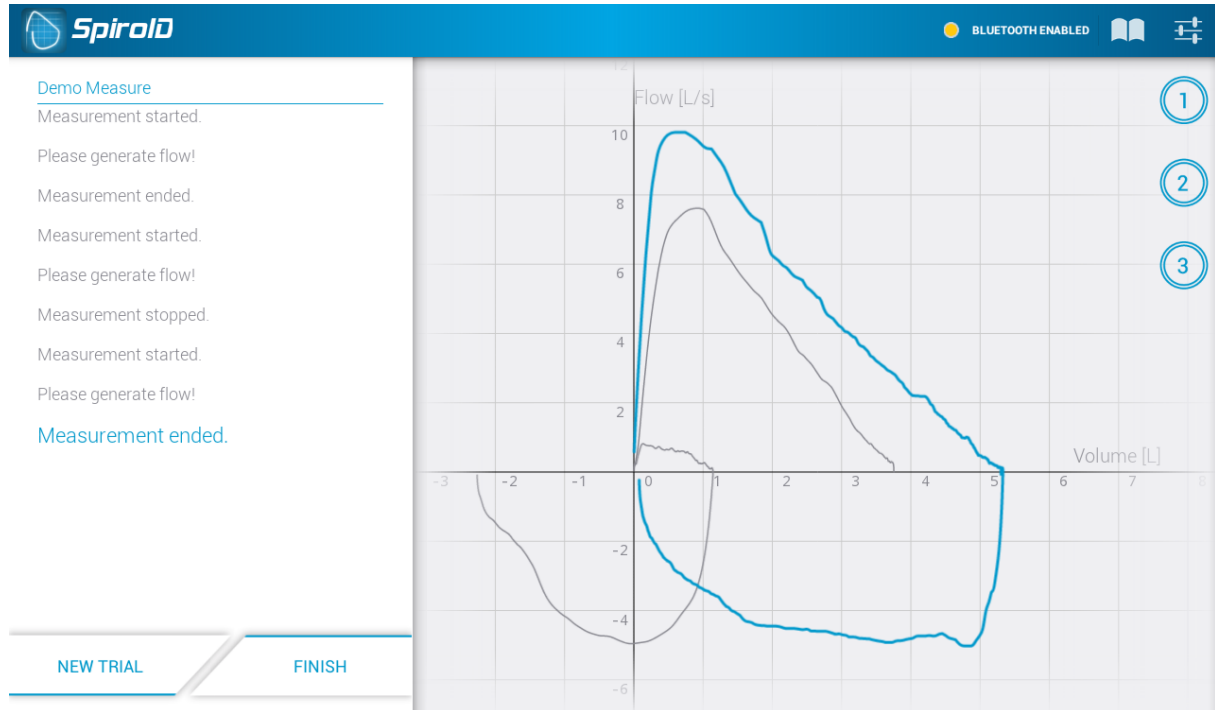
SpiroTube Mobile features an easy and efficient integration to HIS (Hospital Information Systems) and pharmaceutical testing systems.

Precision:	2%
Resolution:	8mL/sec
Flow range:	+/- 18 L/sec
Digital sampling rate:	80 MHz
Flow dimensions:	30 mm(OD) x 150 mm
Device dimensions:	40 x 60 x 150 mm
Communication:	USB , Bluetooth , WiFi available as an option
Power supply:	2 x AAA battery

Contents: ThorSoft software for Android or Windows8, charger, USB cable, user manual, plug for disinfection, carrying case, a sample single use bacterial filter and a sample reusable plastic mouthpiece

1.12 ThorSoft Android Edition - SpiroID

SpiroID is a software running on Android mobile systems such as Samsung tablets:



Standard pulmonary function parameters: FVC, FEV1, PEF, FEV1%FVC, FEV05, FEV3, FEV6, FEF25, FEF50, FEF75, FEF2550, FEF2575, FEF5075, FIVC, FIV1, FIV1%FIVC, PIF, Estimated Lung Age, Obstruction/Restriction detection, NLHEP interpretation, Spirometric reference values

Download the SpiroID software **free of charge** from **Google Play**: just search for “SpiroTube” and proceed with an easy online installation.

1.13 SpiroDesk Cardio-Pulmonary Diagnostic Station

SpiroDesk is a complete Cardio-Pulmonary diagnostic station with a number of available configurations:

1. Basic – Main processing and visualization unit with wired ultrasonic respiratory sensor
2. Wireless – Main processing and visualization unit with wireless ultrasonic respiratory sensor
3. Cardio Basic - Main processing and visualization unit with wired ultrasonic respiratory sensor and built-in 12-channel ECG

4. Cardio Wireless - Main processing and visualization unit with wireless ultrasonic respiratory sensor (via Bluetooth) and wireless ECG (via WI-FI).

Optional features include a wired (USB) or wireless (Bluetooth) Pulse Oximeter (with fingerclip), external printer (A/4) (wider than the built-in 112-mm thermoprinter), archiving memory card (USB).



Stress test subsystem is a software option for the built-in or wireless ECG.

SpiroDesk is optimal for use in hospitals, respiratory surgeries, major GP offices. SpiroDesk features a large, touch screen display, a built-in 112-mm thermoprinter and a large internal memory (up to several hundred thousand records) as well as a rechargeable internal battery. The device can do everything that is reasonably required in a pulmonary lab, and more.

Measured parameters: FVC, PEF, FEV1, FEV1/FVC, FEF25-75, FEF25-50, FEF50-75, FEF25, FEF50, FEF75, FEV6, FET, FIVC, PIF, FIV1, FIV1/FIVC, FIT and more.

The SpiroDesk system features child incentive videos, POST Bronchodilator and Bronchial Challenge tests. The system communicates with human voice. The device plays tutorial videos. The optional built-in ECG features 3D Frank electrode cardiogram visualization as well as a Helige-type automated cardio-interpretation.

The featured predictions algorithms include the Gore / Australian protocol, Knudson, E.R.S. '93 / Knudson, Crapo & Bass / Knudson, E.R.S. '93 / Zapetal, Barcellona / Zapetal, Pneumobill / Knudson, Chinese / Hong Kong, Chinese / Beijing protocol, Austrian, Swiss, Polgar.

Precision:	2%
Resolution:	8mL/sec
Flow range:	+/- 18 L/sec
Digital sampling rate:	100 MHz
Flow dimensions:	30 mm (OD) x 150 mm

Device dimensions: 220 x 210 x 100 mm
Communication: USB, WIFI, Bluetooth

1.14 Whistler Respiratory Diagnostic System for infants



The **Whistler** is a groundbreaking portable medical device for performing pulmonary function tests with both infants and preschool children. The Whistler makes testing outside the pulmonary function laboratory setting possible; it can now be done in the clinic or even at home. Measuring with the Whistler is easy. No forced exhalation is required as in spirometry; pulmonary function values are obtained during tidal breathing. Whistler is wireless, portable and disinfectable.

The Whistler consists of a digital cradle and interchangeable Idegen™ analog modules.

This smart solution will make it possible to perform several different measuring methods with only one cradle and one software package. With the currently available module, flow can be interrupted automatically at a specific point of time, so that both the single occlusion technique (SOT) and the interrupter technique (RINT) can be done. In addition, tidal flow volume (TFV) loops can be monitored and analysed. In the near future, a second module will be available, with which spirometry can be performed.

SOT/RINT-MODULE

Sample rate	160 Hz
Flow range	- 1250 to + 2000 ml/s
Flow resolution	1 ml/s
Flow accuracy	2.5 % or 2.5 ml (whichever is greater)
Flow linearity	< 2 ml
Dead volume	11 ml

PRESSURE SENSOR (IN CRADLE)

Sample rate	1600 Hz
Pressure range	- 6.895 to + 6.895 kPa
Pressure resolution	0.007 kPa
Pressure accuracy	1 %

Pressure linearity	< 0.1 kPa
OCCCLUSION VALVE	
SOT occlusion time	400 - 1500 ms (configurable)
RINT occlusion time	100 ms
Valve type	Low noise silicon rubber valve

Package consist of: a cradle, two SOT/RINT modules, Whistler software (Professional Edition), 8 hours of support for analyzing raw research data, adapter for attaching a face mask size 2 and higher, adapter for attaching a bacterial and viral filter for adults, a starter kit (cleaning set, face masks and bacterial & viral filters), accessories (a USB charger, a Bluetooth dongle and manuals).

2. SENSORS

2.1 VenThor D22/2A Multi-Path Gas Flow and Pressure Sensor



VenThor-22/2A is a multi-path IDEGEN™ air / gas flow meter with a proprietary IDEGEN™ measurement technique. VenThor-22/2A can be used in certain human breathing related applications.

Features:

- Bidirectional Pressure Sensor
- Suitable for specific human medical ventilation applications
- Flow diameter compatible with most human ventilators and ventilator testers
- Inherent BTPS correction: flow volume measurement depends on the quantity and energy of gas molecules
- Built-in automatic internal calibration, less than 0.1 sec calibration time.
- Zero obstacle, no moving parts. The flow sensor can be used as a direct human breathing monitor, inhale or exhale channels
- Quick and easy integration software package with source code
- USB hardware data interface (Serial / RS232 / TTL serial also available upon request)
- Plug-and-play software interface

2.2 VentiThor PC based Ultrasonic medical ventilator tester



VentiTHOR is a multi-path ultrasonic ventilator tester with a proprietary Idegen Technology® algorithm processing.

It is capable to measure medical ventilation parameters: flow, volume, pressure, time. The instantaneous flow, volume and pressure values are being drawn on three separated graphs on a PC screen.

Features:

- Idegen Technology™ ultrasonic flow and volume measurement, a combined molar mass and volumetric sensor technology
- Built-in automatic internal calibration, less than 0,1 sec auto-calibration time
- High reliability, no moving parts
- USB PC Software interface, ergonomic PC Software
- Extendable built-in pressure sensor

Measured parameters:

- Peak and Instantaneous Pressure
- Peep (Pressure min)
- Pressure inspiratory Max
- Inspiratory and Expiratory Peak Flow
- Inspired / Expired Volume Minute
- Inspiratory / Expiratory Tidal Volume
- Breath Rate

3. ACCESSORIES

3.1 LOKI White Single Use Bacterial Filter



The LOKI White Single Use Bacterial filter provides 99.99% filtration efficiency of infectious respiratory bacteria, viruses and small airborne particles.

LOKI White complies with the European Respiratory Society regulations and it is compatible with THOR, MESA, AUSEUROMED, SPIROSONICS and CARDIOLINE spirometers.

LOKI White has been tested and certified by Nelson Laboratories (USA) and certified by TÜV Rheinland (Germany). LOKI White is made in Hungary, EU.

- Bacterial and viral filtering to sub micron size
- Nanofibre medium creating electrostatic filtering
- 99.99% cross-contamination efficiency
- Low expiratory flow impedance
- Tested and efficient at high flow rates
- Protects your test subject and your equipment
- Fully disposable for complete hygiene
- Meets all infection control standards

3.2 LOKIFIL Disinfectable filter



LOKIFIL is a detachable plastic casing that can encase THORFIL bacterial and viral filters (made in Hungary, EU).

LOKIFIL can be disassembled by untwisting the two plastic parts and it can be disinfected in a cold disinfecting liquid. The THORFIL filter material is single-use though, it needs to be changed after each measurement.

- Highly cost efficient solution
- Simple and ergonomic design
- Up to 99.99% cross-contamination free
- Environmentally safe
- Easy to disinfect

3.3 LOKI White Pediatric Mouthpiece



Anatomically shaped mouth piece for the basic pulmonary function tests. We suggest to use in pediatric pulmonary function tests.

- Easy to use with LOKI White Bacterial and Viral Filters.
- Compatible with all IDEGEN™ spirometers.

3.4 LOKI Paper mouthpiece



LOKI single use paper mouthpiece for use with THOR ultrasonic spirometers.
Single use product.

3.5 LOKI Plastic mouthpiece



LOKI multi use plastic mouthpiece for use with THOR ultrasonic spirometers.

Reusable product.

This mouthpiece can be disinfected. It is recommended the quantity ordered be equivalent to the average number of tests done in a day so that at the end of the day you can just throw all the mouthpieces in a disinfection basin for overnight soaking.

3.6 LOKI one-way-valve mouthpiece



The expiratory one-way-valved mouthpiece fits standard peak flow meters and spirometers for expiratory use (e.g.: THOR, MicroMedical, Vitalograph). The patient can exhale forcefully into the peak flow meter or spirometer, and the one-way-valve prevents inhaling through the mouthpiece or equipment is attached to.

- Diameter: 30 mm
- Strong, durable construction
- Special design provides low air resistance

3.7 *Instrument disinfection liquid*



INSTRUMED is an instrument cleansing and disinfecting concentrate which uses the latest in active agents, adjuvants and corrosion protection compounds, with a wide anti-microbial spectrum of application. INSTRUMED is a yellow coloured, mildly viscous product with a distinctive aroma, which allows it to be distinguished from other medical instrument disinfectants.

Reconstitution: Using an appropriately large container, fill with 10 litres of tap water at a temperature not warmer than 40 °C. To this add the disinfectant to the appropriate cubic volume, for example in the case of a 2% solution add 200mls, for a 1% solution add 100mls and so on.

The working solution must always be prepared immediately before being used.

Microbiological effectiveness:

Bactericidal (MRSA, too), Fungicidal, Viracidal (Hepatitis B and HIV inactivating preparation), Sporocidal, Tuberculocidal.

It can be stored in the original, intact, uncompromised container for up to 3 years.
Store between 0-25 °C, away from naked flames or combustible materials.

3.8 *Calibration syringe*



The Sampo 3 Calibration Syringe is a 3 litre calibration device.

It is highly precise, complies with ATS recommendations and European Medical Device Directives.

Specification:

Accuracy: 3 l +/- 15 ml
Outlet: 30 mm, made of aluminum
Syringe body: Powder Coated Aluminum
Dimensions: 510 mm x 80 mm
Weight: 1100 g

1 litre syringe is also available upon request.